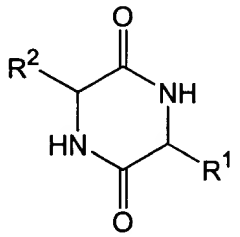
Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1-20 (cancelled)

Claim 21 (currently amended) A method of synthesizing ~~a diketopiperazine comprising~~ diketopiperazines of the following formula:



wherein:

R^1 is $-CH_2COR^3$, or $-CH_2CH_2COR^3$;

R^2 is the side chain of an amino acid selected from the group consisting of glycine, alanine, valine, leucine, isoleucine, serine, threonine, aspartic acid, asparagine, glutamic acid, glutamine, lysine, hydroxylysine, histidine, arginine, phenylalanine, tyrosine, tryptophan, thyroxine, cysteine, methionine, norvaline and ornithine;

R^3 is $-OH$, $-NH_2$, $-OR^4$, $-NHR^4$, or $-NR^4R^4$; and

each R^4 is independently an alkyl, aryl, alkylaryl, or arylalkyl,

the method comprising:

(a) reacting a first amino acid selected from the group consisting of glycine, alanine, valine, leucine, isoleucine, serine, threonine, aspartic acid, asparagine, glutamic acid, glutamine, lysine, hydroxylysine, histidine, arginine, phenylalanine, tyrosine, tryptophan, thyroxine, cysteine, methionine, norvaline and ornithine, with a second amino acid derivative having one of

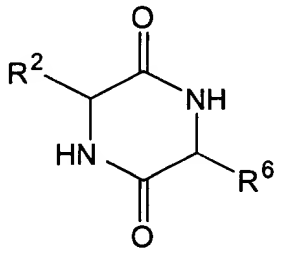
the following formulas:

$NH_2CH(CH_2COOR^5)COOH$ or

$NH_2CH(CH_2CH_2COOR^5)COOH$, wherein R^5 is benzyl,

under conditions effective to form a dipeptide; and,

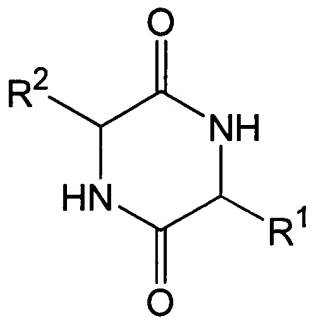
(b) cyclizing the dipeptide at a temperature of between 80°C and 180°C in a neutral solvent to form a diketopiperazine having the formula;



wherein:

R^6 is $-CH_2COOR^5$, or $-CH_2CH_2COOR^5$; and

(c) hydrogenating the diketopiperazine to remove the R^5 group and form a ~~compound~~ diketopiperazine having the formula:



wherein:

R^1 is $-CH_2COOH$, or $-CH_2CH_2COOH$; and,

R^2 is the side chain of an amino acid selected from the group consisting of glycine, alanine, valine, leucine, isoleucine, serine, threonine, aspartic acid, asparagine, glutamic acid,

glutamine, lysine, hydroxylysine, histidine, arginine, phenylalanine, tyrosine, tryptophan, thyroxine, cysteine, methionine, norvaline and ornithine.

Claim 22 (previously presented) The method of Claim 21 wherein the first amino acid is alanine.

Claim 23 (canceled)

Claim 24 (previously presented) The method of Claim 21 wherein the first amino acid is protected with one or more protecting groups.

Claim 25 (previously presented) The method of Claim 21 wherein the amino group or α-carboxyl of the second amino acid derivative is protected with a protecting group.

Claim 26 (previously presented) The method of Claim 21 wherein the neutral solvent comprises butan-2-ol and toluene.

Claim 27 (previously presented) The method of Claim 21 wherein hydrogenating step (c) is conducted using a palladium on carbon catalyst.

Claim 28 (previously presented) The method of Claim 21 further comprising derivatizing the compound formed in step (c) at the carboxylic acid of R^1 to form a derivative selected from the group consisting of an amide and an ester.

Claim 29 (previously presented) The method of Claim 21, wherein the first amino acid is attached to a solid support and wherein the dipeptide is removed from the solid support prior to the cyclizing step (b).